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ABSTRACT

The tools of economic analysis were applied to demographic data in order to develop a social indicator measuring the extent of inequality in the distribution of childrearing responsibility in households from 1940 to 1980. With data drawn from the Current Population Survey of the Bureau of the Census, a "demand intensity" measure was developed. This measure depicts the combination of children and adults in households and arranges households by the relative weight of demands placed on household resources by the number of children present. The Lorenz curve and Gini coefficient methodology were used to analyze the data. Major findings indicated that the distribution of childrearing demands was somewhat more equal during the period from 1940 to 1960 than during the subsequent two decades. However, it was found that, after a shift toward greater equality between 1950 and 1960, the degree of inequality in childrearing responsibilities has increased since 1960. (Implications of the findings for public policy are briefly discussed.) (RH)

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DISTRIBUTION OF CHILDREARING DEMANDS

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Abstract

Changes in household composition in recent decades have brought about a change in the distribution of childrearing among households. The Lorenz curve and Gini coefficient methodology was used to develop a social indicator to document change in the degree of inequality in childrearing demands between 1940 and 1980. The distribution of childrearing demands became somewhat more equal from 1940 to 1960 but the degree of inequality among households has increased sharply since 1960.

Introduction

Recent changes in demographic characteristics and lifestyle preferences of the United States population are reflected in important changes in household composition. Since the 1940's we have witnessed strongly decreasing trends in fertility rates, first marriage and remarriage rates, and the proportion of the population under 18 years of age, while sharp increases have been documented for divorce rates, births to unmarried women, life expectancy, the proportion of elderly individuals in the United States population, and household headship (especially for single individuals and unmarried parents). These changes challenge the feasibility of traditional methods for fulfilling social and economic responsibilities within public as well as private realms.

Family and household units are important elements of economic analysis. As the basic units within which a variety of economic activities occur, families and households are recognized as distinct decision-making bodies, carrying out a variety of necessary functions. The social, demographic and economic activities which culminate in choices of living arrangements and general changes in household composition produce important effects on the economic roles of households and families.

Within the household, goods and services are produced for family members, human capital is developed in family members, individuals are socialized to produce goods and services for pay in the market sector, and resources are distributed among members. Families and households provide financial capital in the form of savings, purchase both a variety of goods and services for consumption and household capital from the market, and contribute to the collective purchase of public goods and services. Changes in living arrangements alter both the intensity and character of the performance of these economic functions.

Examining the distribution of children and adults among households addresses the concern of balancing personal resources with demands placed on those resources. Recent investigators of "nontraditional" lifestyles have often noted the difficulty people have in managing a home, children and work simultaneously. Documenting the distribution of children and adults illustrates the importance of resource-demand problems for our society's human capital. If, in fact, we have children grouped together with a decreasing proportion of adults, the accompanying burdens placed on that smaller proportion of the adult population may be causing reductions in the amount of resources allocated to children.

Society has a collective interest in the process and outcome of childrearing; and responsibility for children has long been shared by parents and society. However, an ongoing debate surrounds the issue of how much responsibility the general society should accept for providing needed basic support for children. If childrearing responsibilities are becoming less widely distributed through the population at the same time that public support systems are being eroded, serious questions arise regarding the adequacy of resources available to raise our society's children.

It is to this concern that this research is addressed; its purpose is to apply tools of economic analysis to demographic data in order to develop a social indicator that measures the degree of inequality in the distribution of childrearing responsibility among households from 1940 to 1980.

Related Literature

Investigation of household composition and the economic effects of living arrangements originated with Frederic Le Play, B. S. Rowntree and I. M. Rubinow in the late nineteenth and early twentieth centuries. Using budget data and demographic information they charted variations in levels of living by the numbers of young children and earners in the family.

More recent work in the area of household composition or living arrangements has taken three different formats. Authors have either identified issues related to the study of household composition and recognized the need to study household composition; used available aggregate statistics, such as average household size, to determine and measure any effects of household composition; or, developed their own measures to study a variety of aspects of living arrangements.

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Thomas Burch was one of the earliest contemporary writers to suggest the need for investigating relationships between several demographic variables and household size and structure (1, p. 62). Following his work several investigators have considered the economic implications of demographic variables, but usually as a by-product of other, related endeavors. Researchers studying the economic and political status of women, fertility, marital stability, measures of economic well-being and income inequality have explored the possible impacts of trends within their own areas of interest on the configuration of domestic arrangements. The few recent studies that were directly concerned with living arrangement variables and changes have focused narrowly on a particular type of living arrangement.

Several researchers have developed their own measures for studying living arrangements. In 1970 Burch employed a measure of the average number of adults per household as an index of household complexity. At that time he suggested the need for the computation of a more refined household complexity measure to acknowledge that household size reflects the relative number of children in the population (1, p. 67).

Simon Kuznets developed a similar measure which he termed the "jointness or apartness of adults factor" (2, p. 212). Within a model of economic decision making he questioned whether differences in average family size stemmed from the number of children or from the tendency of adults to live jointly or separately.

Allan Schnaiberg developed his "child-years-of-dependency" (CYD) measure from a similar standpoint (5, p. 69). He attemped to combine the quantity and timing of fertility in his analysis of family formation. CYD linked numbers and spacing of children to emphasize the burden of children on parental resources and to differentiate among patterns of childrearing, a distinction not previously analyzed by any single demographic measure. In so doing, Schnaiberg converted fertility measures into the broader paradigm of a family formation measure.

Heather Ross and Isabel Sawhill's study of living arrangements, Time of Transition, focused on the growth and composition of female-headed families. They used available data to break down their measure of female-headed families with children into its underlying component changes for the 1960 1970 time period. Ross and Sawhill's components of change methodology determined the proportion of the total change in number of female-headed families with children attributable to changes in the underlying factors of presence of children, marital dissolution, population growth, illegitimacy and propensity of women with children to head their own households (4, p. 207). While this investigation did consider the effects of female-headed families on the children involved, the researchers did not explicitly address the living arrangements of both adults and children simultaneously. The authors recognized that their equations to determine the number of unmarried women with children still represented an "abstraction from some of the complexities of family life," and identified the need to incorporate a living arrangements parameter into their system (4, p. 206).

Most recently Judith Treas studied the determinants of changes in mean number of family members (6, p. 324). She developed and described annual estimates of mean family size, mean number of members under 18 years of age and mean number of members 18 years of age and over. She found that changes in living arrangements of adults tended to modify the impact of the "baby boom" on average family size; however, she found that adults' living arrangement changes have intensified the effect of the recent so-called "baby bust" on mean family size.

These past research efforts illustrate that household composition has been a research interest for many years. However, these research endeavors have only over the past decade become sufficiently focused to analyze changes in specific measures of household composition. Their interest has, for the most part, focused on averages. To date there has been no analysis that considered the arrangement of children and adults living together in an effort to measure and describe the distribution of childrearing across households in our population.

Research Methodology

A distribution of households characterized by child-adult composition can be viewed at different levels of complexity. At a simple level households could be distributed according to the number of children present. This would provide an illustration of how children are dispersed among households in the population. At that level, however, the relationship of household demands to available household resources cannot be evaluated.

Households could be further differentiated by incorporating into the analysis a measure of the number of parents present in the household as well as the number of children. Basing the investigation of household composition on a "demand intensity" measure which depicts the combination of children and adults in households would illustrate the relative weight of demands placed on household resources by the children present. This level of analysis arranges households by the relative weight of demands placed on household resources by the number of children present. This level of investigation provides a distribution of children and adults among households, with these variables ranked by a childrearing intensity ratio. At this level the households identified first on the distribution continuum are those which contain the least intensity of childrearing demand. This "demand intensity" perspective is the approach which will be pursued in this study.

Source of Data

Data for this research were drawn from the Current Population Survey (CPS) of the Bureau of the Census. The CPS data for household characteristics are obtained annually in March.

The CPS sample has been continuously updated since its inception. The latest survey sample was initially selected from the 1970 census files and covers the fifty states and the District of Columbia. Previous years' sample designs were based on files from the most recently completed decennial census. The current CPS sample includes 629 areas composed of 1,133 counties, independent cities and minor civil divisions in the United States. Interviews were obtained from 65,500 households for the latest (March 1980) survey from which data were available. The population to which the samples refer is the non-institutional population in the United States (50 states and the District of Columbia) plus members of the Armed Forces living off post or with their families on post, but excluding all other members of the Armed Forces.

The CPS estimation procedure involves inflating the weighted sample results to meet independent estimates of the total civilian non-institutional population of the United States on the basis of age, race and gender. The independent estimates are based on statistics from the decennial censuses of population; statistics on births, deaths, immigration and emigration; and statistics on the size of the Armed Forces. CPS household characteristics are published in Current Population Reports series.

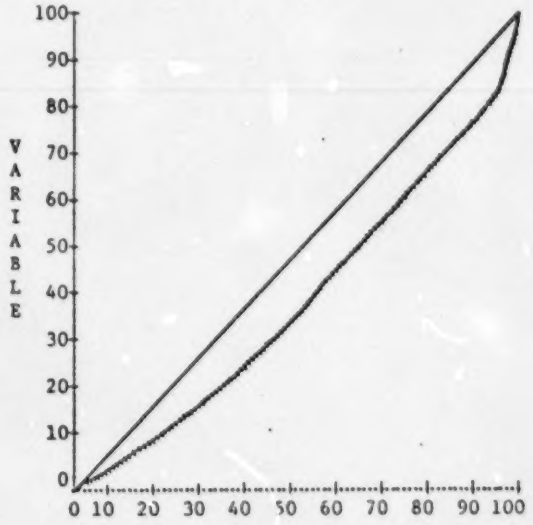
Design of Analysis

The development of the Household Composition Indicator involved several steps. A ranking or ordering of households according to ratios of children-to-adults living together was first developed. This ranking represents a continuum of the intensity of childrearing demands experienced by the household as a result of the number of adults living with different numbers of children. Therefore, the depiction of childrearing responsibility begins with adults living with no children (ratio = 0), continues with households in which there is one child living with two adults (ratio = 1/2), households in which there are two children living with two adults (ratio = 2/2), one child and one adult (1/1), three children and two adults (3/2), four or more children and two adults (4+/2). The scale then continues with the 2/1, 3/1, and lastly the 4+/1 household arrangements. While in a mathematical context the 2/2 ratio may be interpreted as representing an equal level on the continuum as the 1/1 ratio, the 1/1 ratio represents a stronger intensity of demand on adults than does the 2/2 configuration. Economies of scale in childrearing responsibility and demands as well as the opportunity for sharing childrearing responsibility suggests that a living arrangement of two adults living with two children represents a lower level of demand intensity on adults than does a household composition of one adult living with one child (similarly for the 4+/2 and 2/1 configurations).

For each category of the household composition ratios explained above, the number of children and the number of households were tabulated from Current Population Series data for the years 1940-1980. For each year, frequency totals were calculated and percentages of the totals were determined for each ratio category.

The next step involved using a Lorenz curve methodology. A Lorenz curve is a widely used geometrical method of portraying the distribution of a variable. It is traditionally used to illustrate the inequality of the distribution of income within the population. A Lorenz curve is drawn with the vertical and horizontal axes depicting the distribution of the variable within the unit of interest, in percentages, as illustrated below in Figure 1.

FIGURE 1. Lorenz Curve Illustration



For this current research the percentage of children and the percentage of households represent the axes of the graph (percent of all children on the vertical axis and percent of all households on the horizontal axis, both ranked by intensity of childrearing demand in the living arrangement). The cumulative percentages of these units are then plotted against each other on the graph as data points.

This continues until the 100 percent mark is attained for both factors; that is, all children and households are accounted for. This procedure results in nine points, corresponding to the continuum of nine household composition ratios, plotted on the graphical depiction of the distribution of household composition.

A Household Composition curve (HC curve), similar in concept to a traditional Lorenz curve, can then be drawn through the data points which begin on the horizontal axis and meet a diagonal line of equality at the last point (100,100). The HC curve depicts cumulative fractions of the total number of children living in cumulative proportions of households ranked by demand intensity. The diagonal line represents a theoretical population in which each successive percentage of households contains an equal percentage of children. For example, the first 20 percent of all children (ranked by childrearing demand intensity) would live in 20 percent of all households, the first 40 percent of all children would live in 40 percent of all households. The area between the

forty-five degree line of equality and the HC curve represents the deviation of our population's actual household living arrangements from that theoretical situation of an equal distribution of children among all households.

The area between the line of equality and the HC curve is calculated to determine the Household Composition Gini Coefficient for each year. The Household Composition Gini Coefficient represents the ratio of the area between the HC curve and the forty-five degree line to the entire area underneath the diagonal. In the case of perfect equality the area between the HC curve and the forty-five degree line is equal to zero and the Gini Coefficient would also be zero. In the case of perfect inequality the area between the HC curve and the forty-five degree line is equal to the entire area under the diagonal and the Gini Coefficient is equal to 1.0. Therefore, as the Gini Coefficient approaches one, the more unequal is the given distribution.

The trend in this measure depicts changes in the degree of inequality of the distribution of children to adults in the United States. In this research, therefore, the ratio of the area between the HC curve and the line of equality and the entire area under the line of equality will be determined by dividing the area between the HC curve for each year and the diagonal line by the area of the right triangle below the line of equality (area = 5000). This results in a Household Composition Gini for each year. Identification of the trend in inequality of the children-to-adults household composition ratios is accomplished by comparing the Household Composition Gini Coefficients over the time period of investigation.

Analysis of Findings

The distribution of children and households by child/adult ratio is presented in Table 1 for the years 1940, 1960, and 1980. The changes reflect the familiar demographic trends -- an increase in childless households (from almost 50 percent in 1940 to 60 percent in 1980), and in single-parent families (from 6 percent to 8 percent), and a decrease in the number of children in two-parent households (28 percent of children lived with two parents and three or more siblings in 1940, but only 13 percent of all children lived in such an arrangement in 1980).

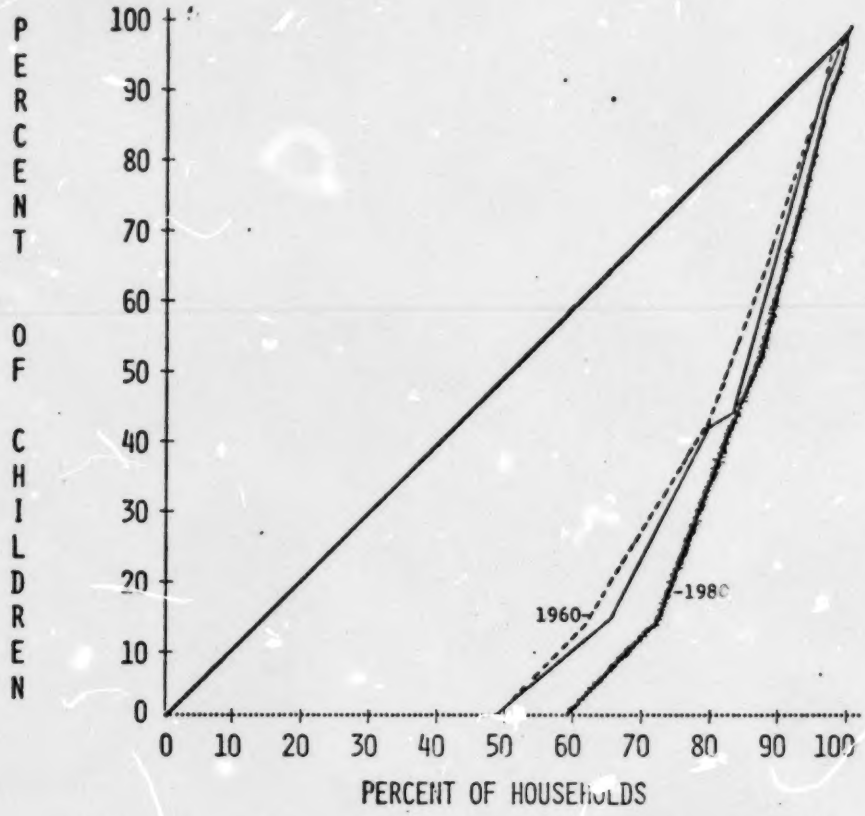
With respect to the intensity of childrearing demands, in 1940 more than half of all children lived in households where there were more children than parents; in 1980 less than half of all children lived in such arrangements. However, in 1940, 11 percent of all children lived with only one parent; in 1980 over 20 percent did so. After 1970 an interesting split occurred in that the proportion of children living in the low demand intensity households reversed its previous decreases and increased substantially at the same time that the proportion of children living in the highest demand households continued its thirty year climb. Therefore, 1980 may be the beginning of increasingly dichotomized living arrangements for children.

TABLE 1. Percentages of Children and Households by Child/Adult Ratio--1940, 1960, 1980

Child/ Adult Ratio	Children Percentage of Total	Children Cumulative	Households Percentage of Total	Households Cumulative
		1940		
0	0	0	48.92	48.92
1/2	17.52	17.52	18.26	67.18
2/2	24.63	42.15	12.83	80.01
1/1	2.90	45.05	3.02	83.03
3/2	18.68	63.73	6.50	89.53
4+/2	27.73	91.46	7.22	96.75
2+/1	8.54	100.00	3.25	100.00
		1960		
0	0	0	48.94	48.94
1/2	12.81	12.81	14.40	63.34
2/2	25.99	38.80	14.61	77.95
1/1	2.04	40.84	2.30	80.25
3/2	24.13	64.97	9.04	89.29
4+/2	27.41	92.38	7.70	96.99
2+/1	7.62	100.00	3.01	100.00
		1980		
0	0	0	59.72	59.72
1/2	15.84	15.84	12.26	71.98
2/2	31.01	46.85	12.00	83.98
1/1	4.92	51.77	3.81	87.79
3/2	19.42	71.99	5.01	92.80
4+/2	13.42	84.61	2.60	95.40
2+/1	15.39	100.00	4.60	100.00

Household composition curves illustrating the degree of inequality in the distribution of children and households ranked by childrearing demands are presented in Figure 2 for 1940, 1960, and 1980. The pattern indicates that there was a trend toward more equality in childrearing demands from 1940 to 1960, but the pattern shifted sharply towards greater inequality in the distribution of children and adults after 1960. The period just prior to 1960 has been labeled the "familial" era (3, p. 2); involvement in childrearing was more prevalent across the population during that time than before or since.

FIGURE 2. Household Composition Curves



The measure of inequality, the Gini Coefficient, is presented in Table 2 for the decennial years beginning in 1940. As expected from the household composition distribution curves, the degree of inequality in childrearing responsibilities has increased since 1960. Between 1940 and 1950 the inequality measure increased by only 1 percent. Between 1950 and 1960 the Gini Coefficient decreased by over 2 percent, illustrating the movement of the distribution toward more equality. After 1960 the distribution shifted sharply toward greater inequality, as illustrated by the 11.13 percent increase in the Gini Coefficient.

TABLE 2. Household Composition Gini Coefficients

Year	Gini
1940	.6206
1950	.6268
1960	.6135
1970	.6402
1980	.6818

Implications for Public Policy

As the presentation of findings of this research depict, the distribution of childrearing demands is becoming more unequal. A decline in the proportion of adults engaged in childrearing has implications for a number of economic and social concerns. The commitment of the adult population to the care of the young and the adequacy of resources available to raise children is important to the well-being of society as well as to the individuals directly affected; and to future generations as well as current ones.

With a smaller proportion of the population directly engaged in childrearing, it is likely that resources, both time and money, available to children may be declining. The increase in the proportion of children raised by only one adult raises questions concerning the balance of demands posed by childrearing on the resources of those that are bearing the responsibilities of parenting.

Household resources can be supplemented by public support when the well-being of children is at risk. However, society is now questioning how much responsibility that public should bear for the health and welfare of family members. The The collective interest in the process and outcome of childrearing is no longer so widely embraced; child and family matters are now seen by many to be purely private affairs. Thus at a time when private resources for childrearing may

be declining due to a smaller proportion of adults directly engaged in the process, public support systems are also being eroded.

Perhaps the decline in acceptance of collective responsibility for the welfare of children is a product of the decline in the proportion of adults who are parents. The difficulty in attaining support for child oriented public programs, particularly public education, may be a result of the decline in the proportion of voters who have a direct day-to-day interest in children.

The growing inequality in childrearing will have an effect on today's adults as they reach retirement age. We will have a growing proportion of aged who have no adult offspring to provide for security in later years. Again, this erosion of familial responsibility is not likely to be replaced by enlarged public responsibility given current political directions. Those adults who now assume no responsibility for care of society's younger members may find as they grow older that there is no one willing to assume responsibility for them.

It is reasonable to assume that the increasing inequality in childrearing demands translates into a growing inequality in the distribution of resources with which to meet those demands. This raises concern over the equality of opportunity afforded today's youth and, in turn, the opportunities they will be able to provide their offspring. If society remains committed to providing equality of opportunity, measures to counteract the inequality inherent in the current pattern of living arrangements may be needed. The principle of equal opportunity points to the need for resource transfer systems that reduce the inequality of resources available to children in their household and near environments.

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